

Soil Characterization Site Exposure – Pit Method

Field Guide

Task

To dig a soil pit that exposes a soil profile for soil characterization measurements and to define the site

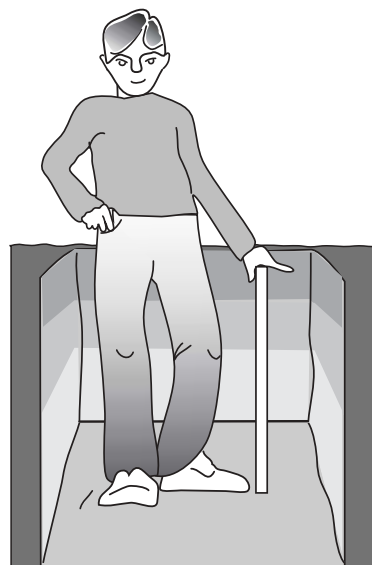
What You Need

- | | |
|---|--|
| <input type="checkbox"/> Shovels, trowels, backhoe
or other digging implements | <input type="checkbox"/> Help with digging! |
| <input type="checkbox"/> Flags for marking the site | <input type="checkbox"/> Clinometer |
| <input type="checkbox"/> Fence, boards, or other protection
to surround and cover a pit
when not in use | <input type="checkbox"/> Local information about your site |
| <input type="checkbox"/> Plastic tarp to cover piles of soil | <input type="checkbox"/> Compass |
| <input type="checkbox"/> <i>Soil Characterization Site Definition Sheet</i> | <input type="checkbox"/> GPS receiver |

In the Field

Exposing the Soil Profile

1. Identify a location where you can dig a soil pit.
2. Dig the soil pit approximately 1 meter deep (or until a hard layer is reached). Make the pit as big around as is necessary to easily observe all of the soil horizons from the bottom to the top of the pit (approximately 1.5 m x 1.5 m).
3. As soil is removed from the pit, place it carefully on a tarp in piles representing each of the natural layers of the profile. The horizons need to be replaced in reverse order (last out, first in) once you are finished using the pit. Cover the pile of soil with plastic to prevent the soil from blowing or washing away.
4. Surround the pit with a fence and mark it with flags to alert people of its location.
5. Cover the pit with boards or some other material to keep animals or debris from falling in when it is not being used.



Defining the Soil Characterization Site

1. Give the site a name or number (e.g., SCS-01). Record this on the *Soil Characterization Site Definition Sheet*.
2. Measure the latitude, longitude, and elevation of the site using the *GPS Protocol*. Record this information on the *Site Definition Sheet*.
3. Identify the steepest slope that crosses the area of exposed soil.
 - a. Two students (A and B) are needed whose eyes are at about the same height to measure the slope. One other student (C) is needed to be the “reader” and “recorder”.
 - b. Student A holds the clinometer and stands down slope while student B walks to the opposite side of the hole. Students A and B should be about 30 m apart (or as far apart as easily possible). Student C should stand next to student A.
 - c. Looking through the clinometer, Student A sites the eye level of Student B. Student C reads the angle of slope on the clinometer in degrees, and records this reading on the *Site Definition Sheet*.
4. Identify the aspect of the steepest slope:
 - a. Face up the steepest slope across the exposed soil area.
 - b. Hold the compass in your hand so that the red arrow is lined up with the North position on the compass.
 - c. Read the number on the edge of the compass housing (which can range from 0 to 360).
 - d. Record this value on the *Site Definition Sheet*.
5. Record “Pit” as the method used to expose the soil profile.
6. Record whether the site is on or off school grounds.
7. Record a description of the site location. (Near the Soil Moisture Study Site, Near the Soil Moisture and Atmospheric Study Sites, Near the Atmosphere Study Site, In the Biology Study Site, Other)
8. Describe and record the position on the landscape where the site is found. (Summit, Side Slope, Depression, Large Flat Area, Streambank)
9. Describe and record the cover type of the site (Bare Soil, Rocks, Grass, Shrubs, Trees, or Other).
10. Describe and record the type of parent material from which the soil was formed at the site (Bedrock, Organic Material, Construction Material, Marine, Lake, Stream, Wind, Glaciers, Volcanoes, or Loose materials on slope moved by gravity).
11. Describe and record the land use at the site (urban, agricultural, recreation, wilderness, other)
12. Measure and record the distance (up to 50 m) of the site from major features (e.g., buildings, power poles, roads, etc.).
13. Describe and record any other distinguishing characteristics of this site.

